70-4-7/16

TARASOV, V.V.

AUTHOR: Tarasov, V.V.
TITLE: Atomic Chains and the Fine Structure of Glass.
(Atomnyye tsepi i tonkoye stroyeniye stekla).
PERIODICAL: Kristallografiya, 1957, Vol.2, Nr 4, pp.489-496 (USSR).

ABSTRACT: Discussion article. Observations on glasses by various
authors are considered in terms of the theory of the specific
heat of chains and lamellae developed by Tarasov. Glass is
regarded as a heterodynamic system with bonds of various
strengths - strong between Si and O and weaker between O and
any metal ions. The ratio O/Si in moving from 2 to 3 indicat-
ed the departure of the structure from the framework type to
the chain type. The role of water as a modifier is shown by
French experiments on producing water-free glasses in a solar
furnace. The general view of a glass agrees with that of
Stevels who regards it as an inorganic high polymer with
branched chain high polymer anions which dissolve cations of
various sorts which modify the properties. A chain structure
for the glass-forming matrix would represent most satisfactor-
ily many physical and technological properties of glasses. The
branched chain picture illuminates the following aspects: the
structure of definite and indefinite compounds in the glass,

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70-4-7/15

Atomic Chains and the Fine Structure of Glass.

the viscosity, the high viscosity in the softening range, the structural birefringence, the chain structure of the metaphosphates and the preferred orientation in metaphosphate fibres, etc. Kruch has explained the positive temperature coefficient of surface tension in glass melts in terms of the rubber-like elasticity of linear high polymers.
There are 10 figures and 22 references, of which 6 are Slavic.

ASSOCIATION: D.I.Mendeleyev Chemico-Technological Institute.
(Khimiko-tekhnologicheskiy Institut im. D.I.Mendeleyeva).

SUBMITTED: February 22, 1957.

AVAILABLE: Library of Congress.

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TARASOV V V

AUTHOR :   Tarasov, V. V.   57-27-7-15/40

TITLE: Atom Chains and Fine Structure of Glass (Atomnyye tsepi i tonkoye stroyeniye stekla)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1957, Vol. 27, Nr 7, pp. 1521-1533 (USSR)

ABSTRACT: A survey is given of the different theories and opinions regarding the structure of glass. At first the glasses are investigated as heterodynamic structures, then the problem whether the glasses are anorganic high-polymers is found by the author to be only partially correct. He is of the opinion that the cations of the modifier are correctly to be considered as monomer-ions dissolved in the structure. The glasses are distinguished from the true polymeric part (structure) possesses the character of a polyvalent ion-radical or of a highly-polymeric anion. Different opinions exist on the distant order in the glasses. It is shown that the two opinions can be reconciled by assuming that this distant order "sui generis" is to be considered a periodicity in the atom-distribution not according to straight lines but according to curves. Such a type of distant order is practically non-existent for the radiographic and electronographic methods. But is determinant value for a number of glas-properties is very great. It is shown that the fine structure of glass is due to the chain formation. On

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Atom Chains and Fine Structure of Glass.   57-27-7-15/40

the one hand the opinion is advocated that the glasses almost always possess a continuous structure of the vitrifier, on the other hand, however, a two-dimensional polymerization is considered impossible. Then follows the investigation of the fine structure of anomalous phosphate-glasses with the aid of ultrasonics. It is shown that the chain-structure of the vitrifying structure reflects many physical and technological properties of glass. There are 9 figures, 1 table and **31 references, 14 of which are Soviet.**

ASSOCIATION: Chemical-Technological Institute imeni D. I. Mendeleyev, Moscow (Khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva, Moskva)

SUBMITTED: November 29, 1956

AVAILABLE: Library of Congress

1. Glass-Structure-Theory   2. Ultrasonic-Applications

Card 2/2

TARASOV, V V

57-10-28/33

AUTHOR: Tarasov, V. V.

TITLE: On the Temperature Factor e^{-2M} for the Intensity of Bragg Maxima in the Case of Chain Crystals (O temperaturnom mnozhitele e^{-2M} dlya intensivnosti breggovskikh maksimumov v sluchaye tsepochechnykh kristallov)

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol. 27 Nr 10, pp. 2398-2403 (USSR)

ABSTRACT: The author refers to the theory developed by himself (in the years from 1945-1951) as well as to the experiments carried out at home and abroad on its basis. The formula for the specific heat in the case of a chain structure of crystals is given and the author shows that, as this formula was proved to be valid for selenium, tellurium, teflon, hydrofluoric acid etc. by the various experiments, there is a certain right to use it as a simple distribution law for frequencies for an approximate finding of the magnitude of the temperature multiplicand e^{-2M} for the case of a chain crystal. The formula for the mean square value of the displacement

$\langle \overline{u^2} \rangle$ is deduced in a direction vertical to one of the

reflecting planes for Mcat. In the formula obtained there are, besides the two members which correspond to the theory of Debye-Vallera, two more members contained which reflect

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On the Temperature Factor e^{-2M} for the Intensity of Bragg   57-10-28/33
Maxima in the Case of Chain Crystals

the characteristics of the temperature multiplicand
M_{cat}.(i. e. catina=chain) for a chain crystal. The author
shows that in the case of the equality of the characteristic
frequencies of "internal" and "external" oscillations, i. e.
at the transition from the hetero- to the homodynamic stru-
cture (from the anisotropic chain continuous spectrum to the
isotropic continuous spectrum of Debye) the formula deduced
here transforms into the ordinary formula of Debey-Vallera
for M_D! There are 2 tables, 2 illustrations and 17 Slavic
references.

ASSOCIATION: Chemical-Technical Institute imeni D. I. Mendeleyev, Moscow
                (Khimiko-tekhnologicheskiy institut imeni D. I. Mendeleyeva,
                Moskva).

SUBMITTED: April 15, 1957

AVAILABLE: Library of Congress

Card 2/2

TARASOV, V. V.

The Correlation between the structure of glasses and their adiabatic compressiblity."

report presented at the 6th Sci Conference on the application of Ultrasound in the Investigation of Matter, 3-7 Feb 1958, Moscow, Organized by Min of Education RSFSR and Moscow Oblast Pedagogic Inst. im N. K.Krupskaya.

SOV 156 - 58-1-39/46

AUTHORS: Matveyev, M. A., Mostovaya, O. A, Tarasov, V. V.

TITLE: Investigations on the Structure of Water Glass with the Help
              of Ultrasonics (Issledovaniye stroyeniya zhidkogo stekla s
              pomoshch'yu ul'trazvuka)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya
              tekhnologiya, 1958, Nr 1, pp. 161 - 163 (USSR)

ABSTRACT: The propagation velocity of ultrasonics in different liquids
              can be measured by means of the ultrasonic-interferometer.
              The coefficient of the adiabatic compressibility is computed
              by means of that velocity and the density of the liquid in
              question. The structure of the liquid is evaluated by the
              magnitude of this coefficient (Ref 1). The authors investi-
              gated sodium and potassium water glass of a different silica
              modulus of elasticity and of different density. The results
              are shown in table 1. Table 2 illustrates results of measure-
              ments in diluted solutions of sodium and potassium silicates
              of an equal specific density. The influence of the silica mo-
Card 1/3   dulus of water glass on its compressibility is represented

Investigations on the Structure of Water Glass by the Help of Ultrasonics

graphically in figure 1. Moreover, the dependence of the co-
efficient of the adiabatic compressibility of water glass on
the silicate concentration was investigated by means of so-
dium tri- and disilicate samples formed in the lab. The re-
sults are shown graphically in figure 2. Henceforth it is
seen that the dependence of the magnitude of the coefficient
of compressibility of sodium water glass of a great silica
modulus on the silicate concentration is of a linear charac-
ter. The dependence of the compressibility of water glass on
its density can be more easily expressed. For sodium tri-
and disilicates the compressibility depends linearily on the
density. The high propagation velocities of ultrasonics in
solutions of water glass with great moduli (sodium and
potassium) are marked by a rigidity of structure. The above
mentioned measurements indicate, the higher the value of
the silica modulus of water glass, i.e. the more the silico-
hydrogen structure branches off the more it adopts a rigid
character. The velocity of propagation of ultrasonics is
greater in a dense sodium-disilicate-solution of 1,3 g/cm^3
than in a potassium-disilicate-solution of equal density.

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SOV, 156 -58-1-39/46

Investigations on the Structure of Water Glass by the Help of Ultrasonics

Accordingly, the compressibility of a sodium-disilicate-solution is less than that of a potassium-disilicate-solution. Consequently, the structure of sodium-disilicate is more rigid than that of potassium-disilicate. There are 4 figures, 2 tables, and 1 **Soviet reference.**

ASSOCIATION: Kafedra obshchey tekhnologii silikatov i kafedra fiziki Moskovskogo khimiko-tekhnologicheskogo instituta im. D. I. Mendeleyeva (Chair of the General Silicate-Technology and Chair of Physics of the Chemico-Technological Institute imeni D. I. Mendeleyev, Moscow)

SUBMITTED: September 11, 1957

Card 3/3

AUTHOR: Tarasov, V. V.   SOV/76-32-9-42/56

TITLE: Common Features in the Structures of Semi-Conductors, High
             Polymers, and Glasses (The Chemical Aspect of the Theory of
             Semi-Conductors) (Obshchiye cherty v strukturakh
             poluprovodnikov, vysokopolimerov i stekol (Khimicheskiy aspekt
             teorii poluprovodnikov))

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 9, pp 2221-2225
             (USSR)

ABSTRACT: In addition to crystalline semi-conductors, such conductors in
             the glassy and liquid states have recently also been discovered
             To the many non-crystalline semi-conductors belong many acid-
             free glasses which are prepared from melts of the sulfides,
             selenides, and tellurides of arsenic, antimony, and bismuth.
             Several such glasses correspond to the type A_2B_3 (A - arsenic,
             antimony, bismuth (III); B - sulfur, selenium, tellurium). In the
             laboratory of the author As_2S_3 was studied by Khuan-Ci-Khuay.

             This substance is in the glassy state at temperatures between
             60° and $200^\circ K$, and resembles the structure of Sb_2S_3.

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S0V/76-32-9-44/46

Common Features in the Structure of Semi-Conductors, High Polymers, and
Glasses (The Chemical Aspect of the Theory of Semi-Conductors)

These non-crystalline semi-conductors may in the near future
find practical application. There are 21 references, 9 of
which are Soviet.

ASSOCIATION: Khimiko-tekhnologicheskiy institut im. Mendeleyeva, Moskva
(Moscow Institute of Chemical Technology imeni Mendeleyev)

SUBMITTED: March 28, 1958

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5(2); 24(2,8)   PHASE I BOOK EXPLOITATION   SOV/2643

Tarasov, Vasiliy Vasil'yevich, Professor

Novyye voprosy fiziki stekla (New Problems in the Physics of Glass) Moscow,
    Gosstroyizdat, 1959. 269 p. Errata slip inserted. 2,000 copies printed.

Ed.: I. L. Glezarova; Tech. Ed.: P. G. Gilenson.

PURPOSE: This book is intended for scientists, teachers in schools of higher
    education, postgraduate students, and students in advanced courses dealing
    with problems of the structure of matter and particularly the structure of
    glass and semiconductors.

COVERAGE: The book reviews inorganic silicate, borate, phosphate, and some
    nonoxide glasses from the point of view of their high polymeric structures.
    Much of the text is devoted to high polymeric chain (linear) structure which,
    in the opinion of the author, is the structural basis of many inorganic
    glasses. These views are strengthened by an analysis of curves which ex-
    press the temperature dependency of the heat capacity of glass. Data on vol-
    umetric compressibility measurements with the aid of ultrasound are also

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     2

given. Lastly, attempts are made to establish general characteristic struc-
tural features of high polymers, semiconductors, and glasses. N. A. Chernop-
lekov collaborated in the writing of Chapters II, III, IV and V. Work by the
following assistants at the laboratory under the author's direction at the
Moskovskiy khimiko-tekhnologicheskiy institut imeni D. I. Mendeleyeva
(Moscow Institute for Chemical Technology imeni D. I. Mendeleyev) was used in
the book: A. V. Gladkov, I. V. Persianova, Ye. G. Ponedel'nikova, A. S. Savi-
tskaya, Ye. F. Stroganov, Kh. B. Khokonov, and Huang Hsi-huai. The manuscript
was prepared by L. M. Tarasova and V. A. Ratobyl'skaya. References are given
at the end of each chapter.

TABLE OF CONTENTS:

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5(2)

SOV/156-59-1-2/54

AUTHORS: Tarasov, V. V., Persianova, I. V.

TITLE: The Compressibility of Ideal Solutions and Mixtures of Unassociated Liquids (Szhimayemost' ideal'nykh rastvorov i smesey neassotsiirovannykh zhidkostey)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 1, pp 8 - 12 (USSR)

ABSTRACT: Ideal solutions or mixtures of liquids are distinguished by the additivity of the physical data of their components. The majority of nonideal solutions show a considerably higher deviation of compressibility than of volume. Therefore, the compressibility is a more significant criterion of the deviation from the ideal state. Deviations may be caused by: the weakening of the intermolecular forces and, in connection herewith, volume increase; the increase of intermolecular forces and volume reduction; structural changes in the liquid and greater density of the molecules; orientation disturbance of dipoles; loosening of the structure because of the orientation of the various molecules towards each other, but this orientation can be

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The Compressibility of Ideal Solutions and Mixtures of   SOV/156-59-1-2/54
Unassociated Liquids

disturbed again by a temperature rise. The propagation
velocity a of ultrasonics is an important quantity de-
pending on the compressibility β and the density ρ of the
liquid:

$$a^2 = \frac{1}{\rho\beta}$$

The equation for the ideal solution is:

$$\frac{1}{a_{id.}^2} = \frac{\varphi_1^2}{x_1}\ \frac{1}{a_1^2} + \frac{\varphi_2^2}{x_2}\ \frac{1}{a_2^2}$$

(x_1, x_2 = weight yield of the components, φ_1, φ_2 = volume yield
of the components). This indicates that the velocity
of sound shows a very complicated dependence on the com-
position even with ideal mixtures and, in general, is
not additive

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Unassociated Liquids

$$\left(\frac{\gamma_1}{x_1} + \frac{\gamma_2}{x_2} \neq 1\right).$$ Therefore, the Rao constants are additive

only if mixtures are concerned the a and q values of which
are close together. Deviations from the ideal state need not
influence the Rao constants if the deviations of volume and
sound velocity neutralize each other. For this reason the
Rao constants cannot be used for the characterization of solu-
tions. Diagrams show the compressibility of almost ideal
solutions depending on the volume or molar yield of the com-
ponents as well as the propagation velocity of ultrasonics.
There are 4 figures and 15 references, 9 of which are Soviet.

ASSOCIATION: Kafedra fiziki Moskovskogo khimiko-tekhnologicheskogo instituta
im. D. I. Mendeleyeva (Chair of Physics of the Moscow Insti-
tute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: September 4, 1958

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TARASOV, U.U.

SOV/30-59-2-45/60

15(0),15(2)
AUTHOR: Kolomiyets, B. T.,
            Doctor of Technical Sciences

TITLE: The Investigation of Vitreous Semi-Conductors
            (Izucheniye stekloobraznykh poluprovodnikov)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 2, pp 103-104 (USSR)

ABSTRACT: From December 1 to 2, 1958 a conference took place on this
            problem at the Fiziko-tekhnicheskiy institut Akademii nauk
            SSSR (Physicotechnical Institute of the Academy of Sciences,
            USSR). It dealt with the discussion of the experiments carried
            out, mutual information on the course of experiments and their
            general coordination. Representatives from 11 scientific
            institutions attended the conference. The following lectures
            were heard: V. V. Tarasov, Moskovskiy khimiko-tekhnologicheskiy
            institut (Moscow Chemicotechnological Institute) spoke of
            experimental results connected with the investigation of heat
            capacity at low temperatures of As_2S_3 and As_2Se_3. His second
            report dealt with the polymeric concept of glass formation and
            semiconductors in general.
            R. L. Myuller, Gosudarstvennyy opticheskiy institut

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The Investigation of Vitreous Semi-Conductors   SOV/30-59-2-45/60

(State Optical Institute) emphasized the decisive role played by the covalent bond in glass formation.

A. A. Vaypolin, Institut khimii silikatov Akademii nauk SSSR (Institute of Silicate Chemistry of the AS USSR) described the investigation of the structure of the system As_2Se_3-As_2Te_3 by X-ray methods.

L. I. Tatarinova, Institut kristallografii Akademii nauk SSSR (Crystallographical Institute of the AS USSR) reported on the structural investigation of some chalcogenids by electron-diffraction.

A. I. Gubanov and V. Ye. Khartsiyev, Fiziko-tekhnicheskiy Institut (Physicotechnical Institute) reported on theoretical problems of the semiconductor properties of glass types.

V. P. Shilo discussed working results in the determination of boundaries in glass formation in the As_2S_3 and As_2Se_3 systems.

N. A. Goryunova compared the boundaries of vitreous state in these systems with the criteria of glass formation obtained by Zakhariasen and Vinter-Kleyn and found that there exists no correlation between them.

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T. F. Nazarova investigated the electric properties of
semiconductor glass types in the TlSe - As_2Se_3 system.

B. T. Kolomiyets spoke of research work in the field of inner
photoelectric effect done by T. N. Mamontova.
B. V. Pavlov discussed experimental results of the position of
the absorption boundary as dependent on the change of
composition of glass types.
V. P. Pozdnev reported on material he obtained in the
investigation of the viscosity of glass types in the
As_2Se_3 - As_2Te_3 system.
B. T. Kolomiyets summarized the working results obtained by
the Physicotechnical Institute and found that in the materials
investigated the short-range order is not changed in the
transition from the vitreous into the crystalline state.
O. V. Mazurin, Leningradskiy khimiko-tekhnologicheskiy institut
(Leningrad Chemicotechnical Institute) described the
investigation of the semiconductor properties of silicate and
borosilicate glass types with the addition of iron-cobalt and
titanium oxides.

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The Investigation of Vitreous Semi-Conductors   SOV/30-59-2-45/60

N. V. Petrovykh, Moskovskiy institut elektrotekhnicheskogo stekla (Moscow Institute of Electrotechnical Glass) outlined the investigation results of the boundaries of glass formation and the electric properties of contiguous semiconductor glass types of the composition V_2O_5 - P_2O_5 - R_xO_y (R- elements of the I, II, III, IV and V groups of the periodic system). The next conference on semi-conductor glass types will probably be held in 1959.

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SOV/156-59-2-4/48

10(1)
AUTHORS: Persianova, I. V., Tarasov, V. V.

TITLE: The Compressibility of Nonaqueous Solutions of Associated
             Components (Szhimayemost' nevodnykh rastvorov assotsiirovan-
             nykh komponentov)

ABSTRACT: The present investigation deals with mixtures of mono- and
             multivalent alcohols, i.e. with liquids of different charac-
             ter of association. Compressibility was measured by determin-
             ing the density and the velocity of the propagation of ultra-
             sound. In all cases considerable deviations of the compres-
             sibility from the additive values occurred. In the majority
             of the investigated cases the interaction of different mole-
             cules was less intensive than in the case of equal ones. There-
             fore, the negative deviations of compressibility are not due
             to an intensification of the intermolecular interaction but
             to a change in the structure of the solution. The results
             achieved by other authors (Refs 5-12) are discussed. In an
             investigation carried out together with Ye. G. Ponedel'nikova
             (Ref 13) it was found that the compressibility is in multi-

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The Compressibility of Nonaqueous Solutions of Associated Components

valent alcohols essentially due to the hydrogen bonds, in the case of monovalent ones, however, to the dispersion interaction of hydrocarbon radicals. With the addition of a multivalent alcohol to a monovalent one the molecules of the multivalent alcohol from hydrogen bonds with the molecules of the monovalent alcohol and link the association chains to complicated aggregates. If the compressibility is compared in the case of an addition of different multivalent alcohols to monovalent ones it is found that the effect is approximately the same for all glycols. This may be explained by the fact that all of them are able to form the same number of hydrogen bonds. In the case of glycerin the compressibility is considerably higher which may be explained by the higher number of hydroxyl groups. In solutions with an excess quantity of multivalent alcohols it is noticeable that small additions of monovalent alcohols cause the same variation of compressibility. It may be assumed that the hydrogen bonds of the monovalent form bridges connecting the associates of glycerin or of the glycols and thus cause the negative deviation of compressibility. This formation of bridges may not only be due to hydroxyl groups but also to other oxygen

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The Compressibility of Nonaqueous Solutions of Associated Components

atoms which are able to form a bond with hydrogen. Thus, acetone shows the same effect as isopropyl alcohol. The mixtures of alcohols with nonpolar substances show considera- ble positive deviations from the Raoult law. It is very likely that in this case a loosening of the structure of the liquid occurs by an embedding of the molecules of the addi- tion between the association chains. There are 4 figures and 16 references, 10 of which are Soviet.

PRESENTED BY:. Kafedra fiziki Moskovskogo khimiko-tekhnologicheskogo in- stituta im. D. I. Mendeleyeva (Chair of Physics, Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: September 4, 1958

Card 3/3

24815
S/081/61/000/011/007/040
B105/B203

15 2510

AUTHOR: Tarasov, V. V.

TITLE: Glass as a polymer

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 11, 1961, 44, abstract
               116316 (Stekloobrazn. sostoyaniye. M.-L., AN SSSR. 1960,
               78-90. Diskus., 98-112)

TEXT: The author gives a thorough critical survey of experimental and
theoretical studies concerning the structure of glass as a polymer.
According to their structure, the glasses are divided into two groups:
band-chain glasses, and glasses with polymeric three-dimensional body.
These glass groups differ very much as to their thermal and mechanical
properties. The author indicates methods of giving the glasses requested
properties on the basis of a combination of glasses of different groups.
23 references. [Abstracter's note: Complete translation.]

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TARASOV, V.V.

PHASE I BOOK EXPLOITATION   SOV/5035

Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 3d, Leningrad, 1959.

Vsesoyuznoye soveshchaniye; trudy Tret'yego vsesoyuznogo soveshchaniya (Vitreous State; Transactions of the Third All-Union Conference on the Vitreous State, Held in Leningrad 16-20 November 1959) Moscow, Izd-vo AN SSSR, 1960. 559 p. Errata slip inserted. 3,200 copies printed.
(Series: Its: Trudy)

Sponsoring Agencies: Institut khimii silikatov Akademii nauk SSSR. Vsesoyuznoye khimicheskoye obshchestvo imeni D.I. Mendeleyeva and Gosudarstvennyy ordena Lenina opticheskiy institut imeni S.I. Vavilova.

Editorial Board: A.I. Avgustinik, V.P. Barzakovskiy, A.A. Lebedev, M.A. Matveyev, V.S. Molchanov, R.L. Myuller, Ye.A. Porny-Koshits, Chairman, N.A. Tolstoy, V.A. V.V.Varkin, A.G. Vlasov, K.S. Yevstrop'yev; Resp. Ed.: N.A. Tolstoy; Tech. Ed.: Florinskaya, A.K. Yakhkind; Ed. of Publishing House: I.V. Suvorov; V.T. Bochever.

PURPOSE: This book is intended for researchers in the science and technology of glasses.

COVERAGE: The book contains the reports and discussions of the Third All-Union Conference on the Vitreous State, held in Leningrad on November 16-19, 1959. the Conference on the Vitreous State, the methods of studying the structure of glasses, the nature of the They deal with the structure and properties of glasses, the nature of glass. Fused relation between the structure, and the physical properties and a number of the re- chemical mechanics of vitrification glasses are also discussed. A number of the new silica, electrical properties of glasses properties and glass structure, and the tinting of ports deal with the dependence and mechanical, technical, and soda borosilicate glasses and radiation effects. Among the participants in the discussion ties of glasses. Other papers treat glass semiconductors and soda Soviet and were N.V. Solomin, Ye.V. Kuvchinskiy, attended by more than 300 delegates from the discussion Gotlib, O.P. Mebediov-Petrogyan, G.P. Mikhaylov, A.M. Lazarev, D.I. Levin, A.V. Saaticv, M.F. Pischeninskiy, A.M. Skornyakov, P.M. Bokin, O.S. Molchanova, Byurganovskaya, V.P. Pozdnev, R.S. Shevelevich, Z.G. Pinsker, and I.I. Kitaygorodskiy, Kuznetsov, V.P. Pozdnev, R.S. Shevelevich, Z.G. Pinsker, and I.I. Kitaygorodskiy, The final session of the Conference, Doctor of Technical Sciences. The following Honored Scientist and Engineer, Doctor of Technical Sciences. The following institutes were cited for their contribution to the development of glass science and technology: Gosudarstvennyy opticheskiy institut (State Optical Institute), Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry, AS USSR), Fizicheskiy institut AS SSSR (Physics Institute AS USSR), Institut (Fiziki AN SSSR, Minsk), Minsk (Institute of Physical Chemistry of the General and Inorganic Chemistry Laboratory of Physical Chemistry (Institute of General and Inorganic Chemistry chenko khimii AS SSSR, Minsk (Institute of High Molecular Compound, AS USSR), Gosudarst- Academy of Sciences Belorusskaya SSR, Minsk), Institut elektroke- soyedineniy AN SSSR (Institute of High Molecular Compound, AS USSR), Gosudarst- nyy institut stekla (State Institute for Glass Fibers), Gosudarstvennyy institut elektroteki- lovolokna stekla (State Institute for Electrical Glass), Sibirskiy fiziko- nichesko khimicheskiy politekhnicheskiy politekhnicheskiy institut (Novocherkassk nichesko khimicheskiy politekhnicheskiy politekhnicheskiy institut (Sverdlovsk Lenmore), Polotekhnicheskiy politekhnicheskiy politekhnicheskiy institut (Siberian State University), Leningradskiy technicheskiy universitet (Leningrad State University), Moskovskiy institut imeni Institute, Minsk), Novocherkassk Sverdlovsk politekhnicheskiy institut imeni polytechnic Institute), The Conference was sponsored by the Vsesoyuznoye D.I. Polytechnic Institute (Acting Director (All-Union Chemical Society imeni D.I. Chemistry AS USSR   D.I. Mendeleyeva ordena Lenina opticheskiy imeni S.I. Vavilov). obshchestvo im.   D.I. Gosudarstvennyy optical institute to organize a new Mendeleyev), and the "order of Lenin" include recommendation, to publish a new S.I. resolutions of the Conference include research on glass, and Chemistry of Silicate The 15 resolutions of "Fizika i khimiya stekla" (Physics Conference thanks Center for under the title "Fizika i khimiya stekla" The organization of Con- periodical and to join the International Committee and Chairman of the Organization of Con- Glass), and to Academician, Professor of Physics and Chemistry. Member of A.A. Lebedev, Porny-Koshits, and N.L. Myuller, Doctor of Chemical Sciences, Member mitter, Ye.A. Porny-Koshits, and N.L. Myuller. The editorial board thanks G.M. Bartenev, Organizational Committee, R.V. Drakins, D.P. Bobryshev, S.K. Dubrovo, V.A. Ioffe, and of the Organizational Committee, R.V. Drakins, individual reports. N.V. Vol'kenstein, B.T. Kolmaltsev. References accompany individual reports.

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15 2120   1142 3109, 3309

S/058 61/000/006/030 063
A001/A101

AUTHORS: Gladkov, A.V., Tarasov, V.V.

TITLE: An investigation of polymer structure of inorganic glasses

PERIODICAL: Referativnyy zhurnal. Fizika, no. 6, 1961, 223, abstract 6D66 (V st.
"Stekloobrazn. sostoyaniye". Moscow-Leningrad, AN SSSR, 1960, 314 -
318, Discus. 343 - 344)

TEXT: In order to produce in glass-formation a covalent bond of polyhedra,
disorderly bent in space, a certain freedom of changing bond valent angles is ne-
cessary, which is provided in silicate glasses by the O atom bonding two Si atoms.
In this way, a polymer skeleton of inorganic glasses is formed. To elucidate the
problem of polymer structure of glass, the authors investigated volumetric compres-
sibility of silicate, borate and phosphate glasses by the ultrasonic method. The
velocity of ultrasonic waves in sodium-silicate glasses decreases with increasing
Na_2O concentration, which is explained by depolymerizing effect of Na_2O. The
curve of ultrasonic velocity in phosphate glasses has a minimum at the composition,
in which the ratio of the number of O atoms to the cation number is equal to 2,
this corresponds to sodium triphosphate or zinc metaphosphate. The data of IR

Card 1/2

An investigation ...

Van Waser ("J. Amer. Chem. Soc.", 1950, v. 72, 664) show that addition of chains and increase in compactness of chain packing, and consequently, increase of ultrasonic velocity, take place in trans-metaphosphate part of glasses investigated by him. Observations have shown that temperature dependence of ultrasonic velocity in molten quartz and glasses of zinc metaphosphate composition has an anomalous course. This phenomenon is explained by crosslinking of chains in the process of polymerization of ZnO_4-tetrahedra to the phosphate chain skeleton. B_2O_3 plays a depolymerizing role with respect to the structure of glass-like silica and sodium-silicate glasses. The role of N_2O in borate glasses is opposite to its role in silicate glasses where it is a depolymerizer of the network. The velocity of ultrasonic waves in annealed glasses increases in comparison with that in hardened glasses; apparently the number of transverse crosslinkages increases in annealing, resulting in an increase of glass elasticity.

A. Yakhkind

[Abstracter's note: Complete translation]

Card 2/2

28305

S/081/61/000/016/008/040
B118/B101

15.8180

AUTHORS: Romanovskiy, V. A., Tarasov, V. V.

TITLE: Structure of the sulfides of the elements of group V of Mendeleyev's periodic system and their tendency to vitrification

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 16, 1961, 43, abstract 16B290 (Sb. "Stekloobrazn. sostoyaniye". M.-L., AN SSSR, 1960, 474-478. Diskus., 478-479)

TEXT: On the basis of the conceptions of the polymeric structure of glass, the authors verify the assumption that the tendency of inorganic polymers to vitrification is the stronger, the more covalent is the polymeric bond and the greater is the kinematic freedom of the structural skeleton in the crystalline state referred to the deformation of the valence angles and to the torsions of the atomic groups relative to the polymeric bonds. The suggestion is made to characterize this freedom by the average coordination number (or average polymer number) of the atom in the polymer lattice site. The data obtained for the specific heats of As_2S_3, Sb_2S_3, and Bi_2S_3 at

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28305
S/081/61/000/016/008/040
B118/B101

Structure of the sulfides ...

low temperatures (RZhKhim., 1961, 2E235; 5E289) are compared with values obtained from V. V. Terasov's equations. In the authors' opinion, the satisfactory agreement confirms the correctness of the conceptions of the dynamic isolation of macromolecules. From the crystalline structure and the interrelations of the force factors, it was concluded that the metallic character of bonds increases in the sequence As_2S_3, Sb_2S_3, and Bi_2S_3. It was found that the kinematic rigidity of the structural skeletons of As_2S_3, Sb_2S_3, and Bi_2S_3 is expressed by the "average polymer coordination numbers" 2.4; 2.5; 5.6, respectively. The difference in the ability of the compounds investigated to form glass is explained by the causes mentioned above. [Abstracter's note: Complete translation.]

Card 2/2

TARASOV, V.V.

"Makrofol." Plast.massy no.8:78-79 '60.   (MIRA 13:10)

(Germany, West--Electric insulators and insulation)

81649
S/181/60/002/06/39/050
B006/B056

24.7600
AUTHORS: Romanovskiy, V. A., Tarasov, V. V.

TITLE: The Specific Heat of Arsenic-, Antimony-, and Bismuth
             Trisulfides in Connection With Their Structure and Their
             Physical and Chemical Properties

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 6, pp. 1287 - 1293

TEXT: In the introduction, the authors describe the results obtained by
investigations of Ito (Ref. 1) and a manifold of details of the As_2S_3
structure and the chemical bond. On the basis of Figs. 1-3, structure,
types of bond, and their transitions (s, p, sp, sp_2, sp_3) are studied,
and the results, above all with respect to the interatomic distances,
obtained by various authors are compared. In part 2 of the paper, experi-
mental and theoretical results obtained by determining the specific heat
are compared. The results of specific heat measurements carried out at low
temperatures (Ref. 12) were evaluated by means of formulas obtained by
Tarasov in Ref. 11, and satisfactory agreement was found. Tables 1-3

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The Specific Heat of Arsenic-, Antimony-, and   S/181/60/002/06/39/050
Bismuth Trisulfides in Connection With Their   B006/B056
Structure and Their Physical and Chemical Properties

give the specific heats of As_2S_3, Sb_2S_3, and Bi_2S_3 for various
temperatures. In part 3 of the paper, the characteristic temperature and
some properties of chain crystals are discussed. The force coefficients β
(of the simplest, straight, and monatomic chains) and k (of the double
bond in diatomic molecules) are studied, and some results are compared
with those obtained by Western authors, and a number of Western data were
published (Tables 4-6). The authors then pass over to semiconductor
properties, and the theory by A. F. Ioffe concerning the part played by
the short-range order and the connection between the semiconductor
properties and the interaction character of neighboring atoms is
discussed. According to Ref. 18, it is assumed that the semiconductor
properties of matter are connected with the presence of predominantly
covalent bonds. Figs. 4 and 5 show the dependence of the width of the
forbidden band ΔE (in ev) on β for impurity sulfides and semiconductors
of the germanium series (the ΔE values are taken from Ref. 19 and
G. I. Rekalova - Ref. 3). These functions are found to take an analogous
course for both series of compounds; they are linear in first

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81649

The Specific Heat of Arsenic-, Antimony-, and   8/181/60/002/06/39/050
Bismuth Trisulfides in Connection With Their   B006/B056
Structure and Their Physical and Chemical Properties

approximation. Finally, some results obtained by N. N. Sirota (Ref. 20)
are discussed. Table 7 gives the melting points and ΔE of S, Se, and Te;
as may be seen, the width of the forbidden band decreases for these
elements with increasing melting point (for the elements of the germanium
series the relations are reversed). B. K. Vaynshteyn and V. F. Dvoryankin
(Ref. 8) are mentioned. There are 5 figures, 7 tables, and 20 references:
9 Soviet, 4 American, 1 Japanese, and 5 German.

ASSOCIATION: Khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva,
            Kafedra fiziki, Moskva (Institute of Chemical Technology
            imeni D. I. Mendeleyev, Chair of Physics, Moscow)

SUBMITTED: July 14, 1959

Card 3/3

81650

S/181/60/002/06/40/050
B006/B056

5.4700

AUTHORS: Romanovskiy, V. A., Tarasov, V. V.

TITLE: The Low-temperature Specific Heat and the Entropy at 298.1°K of Sulfides of the Elements of the Fifth Group of the Periodic System by D. I. Mendeleyev

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 6, pp. 1294 - 1299

TEXT: The authors measured the specific heat within the range of from 65 to 300°K by means of an adiabatic calorimeter. The calorimeter ampoule used is shown in cross section in Fig. 1, and is described in the introduction. Fig. 2 shows the circuit used to measure the current capacity, which is also described in detail; the errors that may occur in the individual components of the circiut are mentioned. The total relative error in measuring the specific heat is found not to exceed 0.33 %. The results obtained by control tests were compared with American data (Table 1), and were found to be satisfactory. The measurements themselves were carried out on polymeric crystalline modifications of sulfides; for the purpose of determining the specific heat of As_2S_3 and Sb_2S_3 the minerals orpiment and

Card 1/2

81650

The Low-temperature Specific Heat and the Entropy S/181/60/002/06/40/050
at 298.1°K of Sulfides of the Elements of the   B006/B056
Fifth Group of the Periodic System by
D. I. Mendeleyev

antimonite were used as well as an amorphous powder of Bi_2S_3, the further
treatment of which is described. The results obtained by measuring the
specific heats (c_p) of the investigated crystalline samples of As_2S_3,
Sb_2S_3, and Bi_2S_3 are given in Tables 2, 3, and 4, and Table 5 gives the
entropy values. For the calculation of entropy equations obtained by
V. V. Tarasov were used (for extrapolation to 0°K). The errors are about
4 %. Ye. S. Itskevich and Ye. F. Stroganov are mentioned. There are 2
figures, 5 tables, and 5 references: 4 Soviet.

ASSOCIATION: Khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva,
             Moskva (Institute of Chemical Technology im. D. I. Mendeleyev
             Moscow)

SUBMITTED: July 14, 1959

Card 2/2

PERSIANOVA, I.V.; TARASOV, V.V.

Compressibility of aqueous solutions of nonelectrolytes. Izv.vys.
ucheb.zav.; khim.i khim tekh. 3 no.1:4-7 '60.   (MIRA 13:6)

1. Moskovskiy khimiko-tekhnologichesky institut imeni D.I.
Mendeleyeva, kafedra fiziki.
            (Alcohols)   (Compressibility)

TARASOV, V.V.

Tarasov, V. V.

AUTHOR: Syritskaya, Z. M.

S/072/60/000/03/021/023
B003/B008

TITLE: 3rd All-Union Conference on the Vitreous State

PERIODICAL: Steklo i keramika, 1960, Nr 3, pp 43-46 (USSR)

ABSTRACT: The 3rd All-Union Conference on the Vitreous State was held in Leningrad at the end of 1959. It was organized by the Institut khimii silikatov AN SSSR (Institute of the Chemistry of Silicates AS USSR), Vsesoyuznoye khimicheskoye obshchestvo imeni D. I. Mendeleyeva (All-Union Chemical Society imeni D. I. Mendeleyev) and Gosudarstvennyy opticheskiy institut imeni S. I. Vavilova (State Optical Institute imeni S. I. Vavilov). More than 100 reports on the structure of glass, investigation methods of the vitreous state, the mechanism of vitrification and physicochemical and technical properties of glasses were delivered. The Conference was opened by Academician A. A. Lebedev. [illegible]. At the 5th meeting, 9 reports dealt with the investigation results of sodium-boron-silicate glasses. A. A. Appen and Gan' Fu-Si, "Boron and Alumoboron Anomaly of the Properties of Silicate Glasses"; Ye. I. Galant, "On the Coordination Numbers of Aluminum and Boron in Some Glasses"; S. P. Zhdanov reported on structural changes in boron-silicate glasses; Ye. A. Poray-Koshits and S. P. Zhdanov reported on some controversial problems concerning the structure of boron-silicate glasses and their porous products; Ye. A. Poray-Koshits and N. S. Andreyev, "Submicroscopic Inhomogeneities in the Structure of Complex Glasses". The 15 reports at Card 3/8

the 6th meeting dealt with the electric properties of glasses. L. M. Belyayevskaya reported on the structure determination of glass with the aid of an inhomogeneous electric field; N. M. [illegible] and V. I. Odelevskiy, "Structure and Properties of Some Oxide Glasses in the Light of the Polymer-theory of the Vitreous State"; R. L. Myuller reported on the agility and the degree of dissociation as functions of the ionic and atomar composition of the glass; V. I. Odelevskiy reported on the nature of dielectric losses in glasslike and crystalline aluminosilicates; V. P. Petrosyan, "Investigation of the Dielectric Polarization and the Losses in Phosphate Glasses"; V. A. Presnov, V. I. Gaman and L. N. Krasil'nikov reported on investigations of the conductivity of glasses in electric high-tension fields, K. K. Yevstrop'yev on the diffusion of Na^{22} and K^{42} in some silicate glasses, V. A. Ioffe, I. B. Yanchevskaya and G. I. Khvostenko on electric properties of crystalline and glasslike aluminosilicates. O. V. Mazurin spoke on his studies which were carried out under the supervision of Professor K. S. Yevstrop'yev at the Kafedra stekla LTI imeni Lensoveta (Chair for Glass of the Leningrad Technological Institute imeni Lensovet) in the report: "The Dependence of the Electroconductivity of Glasses on the Chemical Composition". V. A. Khar'yuzov, O. V. Mazurin and Card 4/8

N. M. Zubkova gave investigation results on the specific electroconductivity of glasses of the system $SiO_2 - B_2O_3 - BaO$ in the temperature range of from 400-1300° and on the influence of additions of aluminum- and zinc oxide on the electric conductivity of these glasses. At the 7th meeting, 6 reports dealt with glasses as semiconductors, 9 with the coloring of glasses and the influence of radiation and 4 reports with technical properties of glasses. V. A. Ioffe and G. I. Khvostenko, "Electric Properties of Some Semiconductor Glasses". B. T. Kolomiyets, N. A. Goryunova and V. P. Shilo reported on methods for the production of chalcogenide glasses, on some of their general properties and on the limits of the vitreous state in the systems $Tl_2Se - As_2Se_3$, $Tl_2Se - Sb_2Se_3$, $Sb_2Se_3 - As_2Se_3$, $Tl - As - Se$. B. T. Kolomiyets and B. V. Pavlov reported on the optical absorption in a number of binary chalcogenide systems. B. T. Kolomiyets, T. N. Mamontova and G. P. Nazarova reported on the electron conductivity of chalcogenide glasses. A. A. Vaypolin, Ye. A. Poray-Koshits, "Radiographic Investigation of the Structure of Vitreous Arsenic Chalcogenides". V. V. Tarasov and V. A. Romanovskiy reported on the chain structure of the vitreous arsenious sulphide determined by them with calorimetric measurements. K. P. Azarov reported on structure and properties of ferrous boron glasses and Card 5/8

(32)

TARasov V.V.

AUTHOR: Syritskaya, Z. M.

S/072/60/000/03/021/025
B003/B008

TITLE: 3rd All-Union Conference on the Vitreous State

PERIODICAL: Steklo i keramika, 1960, Nr 3, pp 43-46 (USSR)

ABSTRACT: The 3rd All-Union Conference on the Vitreous State was held in Leningrad at the end of 1959. It was organized by the Institut khimii silikatov AN SSSR (Institute of the Chemistry of Silicates AS USSR), Vsesoyuznoye khimicheskoye obshchestvo imeni D. I. Mendeleyeva (All-Union Chemical Society imeni D. I. Mendeleyev) and Gosudarstvennyy opticheskiy institut imeni S. I. Vavilova (State Optical Institute imeni S. I. Vavilov). More than 100 reports on the structure of glass, investigation methods of the vitreous state, the mechanism of vitrification and physicochemical and technical properties of glasses were delivered. The Conference was opened by Academician A. A. Lebedev.

At the 7th meeting, 6 reports dealt with glasses as semiconductors, 9 with the coloring of glasses and the influence of radiation and 4 reports with technical properties of glasses. V. V. Vargin and T. I. Veynberg, "Coloring of Glasses in Connection With Their Structure". N. I. Vlasova, Ye. I. Galant, A. A. Kefeli, "Absorption Spectrum of the Co^{2+} Ion as Indicator for the Coordination of Boron and Aluminum in Glasses". V. P. Danilov and N. V. Berbash reported on the change of the spectral absorption of glasses of simple composition under the influence of gamma rays. G. O. Karapetyan reported on the influence of the structure of glasses on spectral and chemical properties of the Cer-ions. N. F. Orlov reported on the role of the admixtures and the crystalline state of the lattice in the coloring of quartz glass by gamma radiation. L. M. Blyumen and R. L. Shuster reported on the physicochemical nature of pore formation in silicate melts (foam glass, saranaite). Ye. V. Yermolayeva reported on physico-chemical investigations of melts of refractory oxides in a state of equilibrium. I. F. Ponomarev, "The Importance of the Vitreous Phase in the Formation of the Ceramic Body and the Cement Clinker". V. A. Presnov reported on the physico-

Card 6/8

chemical fundamentals of the fusing of glass and metal. The 8th meeting dealt with physical chemistry and mechanical properties of glass. K. S. Yevstrop'yev, G. M. Bartenev and S. K. Dubrovo made comprehensive reports. A. A. Appen reported on the fundamental structural parameters which determine the properties of the glass. A. V. Gladkov, V. A. Patobyl'skaya, V. V. Tarasov reported on research results of the polymeric structure of inorganic glasses. L. I. Demkina reported on peculiarities of the expansion of oxides in silicate glasses. V. G. Slavyanskiy reported on the subject: "The Energy of Covalent Bonds in Glass and Their Role in the Process of the Viscous Flux". Z. M. Syritskaya reported on physico-chemical properties of alumophosphate glasses. Yu. A. Shmidt reported on the dependence of the properties of alkali silicate glasses on the composition. Z. N. Shcheglova reported on: "Investigation of the Dependence of the Optical Properties of Phosphate Glasses on the Composition". A. K. Yakhkind reported on the subject: "The Periodic System and the Optical Constants of Glass". M. S. Aslanova reported on: "Mechanical Properties of Glass Fibers". G. M. Bartenev, A. S. Yeremeyeva made a report on the mechanical properties of inorganic glasses in the anomalous interval and on their structure. Ye. I. Kozlovskaya reported on the elastic properties of glasses and on the influence of the composition of the glasses on their mechanical

Card 7/8

properties. A. V. Abramyan reported on the subject: "Leaching of Molten Glasslike Basalts by Aqueous Solutions of Acids and the State of the Oxides in the Structure of Glass Basalts". S. M. Brekhovskikh and V. M. Sesorova reported on synthesis and investigation of hafnium silicate glasses. S. K. Dubrovo reported on physico-chemical properties of gallium silicate glasses. V. A. Dubrovskiy and T. S. Dubrovskaya reported on the surface film forming on calcium-sodium glass in the acidic, neutral and basic medium. The following persons reported at the final meeting: V. F. Kokorina on the influence of the alkaline earth oxides on the chemical stability of glasses in a humid atmosphere; L. Ya. Mazelev on vitrification and properties of borate glasses; B. P. Nikol'skiy, Ye. A. Materova and V. V. Moiseyev on the reaction of electrode glasses with solutions. Doctor Vogel and Roetger spoke as guests from Eastern Germany. Academician N. V. Belov, N. A. Bezborodov, I. I. Kitaygorodskiy, and R. K. Keler also spoke at the final meeting.

Card 8/8

38

TARASOV, V.V.

Rupture strength of liquids. Izv.vys.ucheb.zav.;khim.i khim.tekh.
4 no.3:520 '61. (MIRA 14:10)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni
Mendeleyeva.
(Liquids)

ZVORYKIN, A.Ya.; PEREL'MAN, F.M.; TARASOV, V.V.

Molybdenum and tungsten sulfides and oxysulfides. Zhur.neorg.khim.
6 no.9:1994-1998 S '61.   (MIRA 14:9)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova
Akademii nauk SSSR.
                 (Molybdenum sulfide) (Oxysulfides)

PEREL'MAN, F.M.; ZVORYKIN, A.Ya.; TARASOV, V.V.; DEMINA, G.A.

Thio salts of molybdenum and tungsten. Zhur.neorg.khim. 6 no.9:
1999-2002 S '61.   (MIRA 14:9)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova
AN SSSR.
          (Molybdates) (Tungstates) (Systems (Chemistry))

TARASOV, V.V.

Inorganic high polymers and new physical methods for their study.
Trudy MKHTI no.37:11-31 '62.   (MIRA 16:12)

TARASOV, V.V.; RATOBYL'SKAYA, V.A.

Thermal polymerization and depolymerization of glasslike arsenic
trisulfide. Trudy MKHTI no.37:99-105 '62.   (MIRA 16:12)

ACCESSION NR: AP3001579   S/0191/63/000/006/0026/0029

AUTHOR: Akutin, M. S.; Kotrelev, V. N.; Kovarskaya, B. M.; Kostryukova, T. D.;
Tarasov, V. V.; Sidnev, A. I.; Rodin, E.; Nitche, O. N.; Neyman, M. B.

TITLE: Casting of polycarbonates under pressure.

SOURCE: Plasticheskiye massy, no. 6, 1963, 26-29

TOPIC TAGS: Diflon, polycarbonate, thermal oxidation

ABSTRACT: The change in molecular weight and mechanical properties of a poly-
carbonate "Diflon" under laboratory oxidation and on pressure-casting was studied.
Polycarbonates are destroyed more rapidly by pressure casting than by thermal
oxidation. Apparently, this acceleration is combined with the presence of mechani-
cal destruction. The minimum amount of time and temperature for transforming the
polymer to the viscous-flowing state should be used in order to reduce the extent
of destruction. Orig. art. has: 9 figures, 1 table and 1 equation.

ASSOCIATION: none

SUBMITTED: 00   DATE ACQ: 01Jul63   ENCL: 00

Card   1/2

S/0081/63/000/022/0384/0384

ACCESSION NR: AR4015645

SOURCE: RZh. Khimiya, Abs. 22L93

AUTHOR: Yagodin, G. A.; Pushkov, A. A.; Tarasov, V. V.

TITLE: Separation of zirconium and hafnium by extraction in a packed pulsating column

CITED SOURCE: Tr. Mos. khim.-tekhnol. in-ta im. D. I. Mendeleyeva, vy*p. 40, 1963, 142-144

TOPIC TAGS: zirconium, hafnium, chromatography, column chromatography, zirconium purification, pulsating column

TRANSLATION: A good degree of purification of Zr from Hf can be obtained by extraction with a 10% solution of diisoamylmethylphosphinate in kerosene on a packed pulsating column. N. Shiryayeva

SUB CODE: CH   ENCL: 00

DATE ACQ: 07Jan64

Card 1/1

ACCESSION NR: AR4040829   S/0058/64/000/005/E067/E067

SOURCE: Ref. zh. Fizika, Abs. 5E502

AUTHOR: Mel'nikov, G. S.; Tarasov, V. V.

TITLE: The hardness of simple compounds

CITED SOURCE: Tr. Mosk. khim.-tekhnol. in-ta im. D. I. Mendeleyeva, vy*p. 41, 1963, 5-7

TOPIC TAGS: hardness, oscillation, oscillation zero point energy, lattice, simple compound

TRANSLATION: There is introduced a new criterion of harness--the zero-point energy of oscillations of atoms of the lattice

$$E_0 = \int_0^\infty g(v)(hv/2)dv,$$

Card 1/2

ACCESSION NR: AR4040829

where $g(\nu)$ — distribution function of frequencies ν, where it is assumed that the greater E_0, the greater the hardness. There is obtained good coincidence between E_0 and experimentally measured hardness for a number of elements (Li, Na, K, Be), oxides, and alkali-halide compounds.

SUB CODE: SS   ENCL: 00

Card 2/2

MERTSLIN, R.V.; TARASOV, V.V.; NIKURASHINA, N.I.

Characteristics of the layer separation field in ternary
transition type systems. Part 3. Zhur. ob. khim. 33 no.8:
2435-2440 Ag '63.   (MIRA 16:11)

1. Saratovskiy gosudarstvennyy universitet.

L 52562-65   EWT(m)/EWP(t)/EWP(k)/EWP(b)/EWP(e)   Pq-4   WE

UR/2539/63/000/044/0008/0009

ACCESSION NR: AT5012662

AUTHOR: Tarasov, V. V., Yunitskiy, G. A.

TITLE: The speed of sound in alkali-borate glasses and their adiabatic compressibility

SOURCE: Moscow. Khimiko-tekhnologicheskiy institut. Trudy, no. 44, 1963. Issledovaniya v oblasti fizicheskoy khimii, analiticheskoy khimii i elektrokhimii (Research in the field of physical chemistry, analytical chemistry and electrochemistry), 8-9

TOPIC TAGS: ultrasound propagation, sound speed, alkali borate glass, glass compressibility, adiabatic compressibility, glass structure

ABSTRACT: An analysis of the structural changes taking place when an alkali oxide is added to boric anhydride shows that, as the concentration of the alkali oxide increases to 25 mole %, three-dimensional cross-linking of the B_2O_3 skeleton takes place which is due to the formation of additional oxygen bridges between the oxygen atom and two adjacent boron atoms. Above 25 mole %, the coordination number of boron changes from three to four. Since changes in the velocity of ultrasound and adiabatic compressibility are very sensitive to structural changes, the authors measured the velocity of ultrasound in lithium borate glasses. The measurements were made with a piezoelectric quartz resonator whose.

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L 52562-65

ACCESSION NR: AT5012662

natural frequency f_1 = 136925 cps. The ultrasonic measurements (see Fig. 1 of the Enclosure) confirmed the fact that three-dimensional cross-linking increased with increasing concentration of the alkali oxide, in this case Li_2O. Orig. art. has: 2 figures and 1 formula.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut (Moscow Chemical Engineering Institute)

SUBMITTED: 00   ENCL: 01   SUB CODE: MT, GP
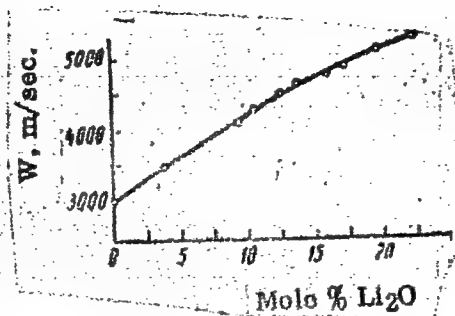
NO REF SOV: 002   OTHER: 002

Card 2/3

Figure 1. Velocity of ultrasound in lithium-borate glasses.

Card 3/3

YAGODIN, G.A.; PUSHKOV, A.A.; TARASOV, V.V.

Separation of zirconium and hafnium by means of extraction in
a pulsed packed tower. Trudy MKHTI no.40:142-144   '63.
(MIRA 18:12)

ACCESSION NR: AR4034492   S/0058/64/000/003/H055/H055

SOURCE: Ref. zh. Fiz., Abs. 3Zh385

AUTHORS: Yunitskiy, G. A.; Tarasov, V. V.

TITLE: Determination of the velocity of ultrasound in matter by the compound resonator method

CITED SOURCE: Tr. Mosk. khim.-tekhnol. in-ta im. D. I. Mendeleyeva, vy*p. 41, 1963, 10-13

TOPIC TAGS: ultrasound propagation velocity, compound resonator, quartz crystal oscillation, resonator resonant frequency

TRANSLATION: One of the methods of determining the velocity of ultrasound in a solid by the method of the compound resonator is described. The use of double compound resonator makes it possible to avoid precision adjustment of the lengths of the specimens to satisfy

Card 1/2

ACCESSION NR: AR4034492

the condition $f \approx f_1 \approx f_2 \approx f_3$, which must be satisfied when a triple compound resonator is used (f -- resonant frequency of the compound resonator, f_1 -- natural frequency of the quartz crystal, f_2 -- natural frequency of the sound-conducting rod, and f_3 -- natural frequency of the specimen). In the case of a double compound resonator, measurements of two successive values of the resonant frequency of the compound resonator, f' and f", yield the values of the natural frequencies of the specimen f_3' and f_3'', after which the ratio $f_3'/n' = f_3''/(n' + 1)$ is used to determine the number of half waves which fit along the specimen at both oscillation frequencies. Thus, the velocity of ultrasound for any specimen length can be determined from two readings of the resonant frequencies of the compound resonator. V. Cherpak.

DATE ACQ: 10Apr64   SUB CODE: PH   ENCL: 00

Card 2/2

L 2105-65   EWT(m)/EWP(q)/EWP(b)   Pq-4   AS(mp)-2/ESD(t)/RAEM(t)   WH

S/0058/64/000/004/E012/E012

ACCESSION NR: AR4039921

SOURCE: Ref. zh. Fiz., Abs. 4E84

AUTHORS: Semenov, L. V.; Tarasov, V. V.

TITLE: Diamagnetic anisotropy and polymer structure of alkali-borate glasses

CITED SOURCE: Tr. Mosk. khim. -tekhnol. in-ta im. D. I. Mendeleyeva, vy*p. 41, 1963, 104-106

TOPIC TAGS: diamagnetism, anisotropy, polymer structure, borate glass, potassium compound, polymer chain

TRANSLATION: The Krishnan oscillation method is used to investigate the diamagnetic anisotropy of potassium-borate glasses, and it is shown that when K_2O content of the glass is increased, the anisotropy decreases and disappears completely at a concentration ~20 mol.%. It is assumed that introduction of K_2O contributes to the occurrence

Card 1/2

L 2105-65
ACCESSION NR: AR4039921

of an oxygen bridge between the polymer chains of B_2O_3, leading to
the formation of a three-dimensional structure.   V. Zelentsov.

SUB CODE: GP, OP   ENCL: OO

Card   2/2

L 36366-66   EWT(m)/EWP(e)   WH/WW

ACC NR: AR6012426   SOURCE CODE: UR/0081/65/000/020/B050/B050

38

B

AUTHOR: Tarasov, V. V.

TITLE: Polymer structure of boric anhydride and sodium borate glasses

SOURCE: Ref. zh. Khimiya, Abs. 20B314

REF SOURCE: Sb. Stekloobrazn. sostoyaniye. T. 3. Vyp. 4. Minsk, 1964, 112-119

TOPIC TAGS: polymer structure, borate glass, fiber glass, magnetic anisotropy, oxygen, polymer cross linking

ABSTRACT: The structure of B_2O_3 and alkaline borate glasses is analyzed. Comparison of softening points, compressibility, coefficient of linear expansion, and mechanical losses of B_2O_3 and SiO_2 indicates a small spaial three-dimensional coherence of the B_2O_3 frame. The above and the effects of diamagnetic and optical anisotropy of glass fiber from pure B_2O_3 can be used as a base for describing the polymer structure of B_2O_3. A structural diagram of B_2O_3 including six-member boroxale rings, is presented. The addition of the Na_2O to the pure

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L 36366-66

ACC NR: AR6012426

B_2O_3 produces a change in the coordination of $B_3 \to B_4$. If the content of $Na_2O \leq 25$ mol %, the change in coordination is accompanied by three-dimensional crosslinking because of the formation of additional oxygen bridges. When less than 25 mol % Na_2O is introduced into the glass, the transition $B_3 \to B_4$ proceeds without the additional three-dimensional crosslinking of the skeleton, because incorrect boroxygen tetrahedrons are created and because one of the oxygen atoms is not bridging but lateral. When the glass contains a great amount of Na_2O (more than 45 mol %), the disintegration of the B_2O_3 skeleton can take place, proceeding in the same way as in silicate glasses. V. Pavlovskiy. [Translation of abstract]

[NT]

SUB CODE: 11,07

Card 2/2

TARASOV, V.V.; YUNITSKIY, G.A.

Data processing on the quantum theory of the heat capacity of chain structures. Trudy MKHTI no.44:5-7 '64. (MIRA 18:1)

Velocity of sound in alkali borate glasses and their adiabatic compressibility. Ibid.:8-9

TARASOV, V. V.; BARTENEV, G. M.; YEREMEYEVA, A. S.; RATOBYLSKAYA, V. A.

3

"On polymeric nature of vitreous arsenic trisulfide."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

TARASOV, V. V.

"Spatially - polymeric, chain and electronic structure of some inorganic glasses."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

L 41604-65   EWT(m)/EMP(j)   Pc-4   EM   S/0081/64/000/022/S039/S039

ACCESSION NR: AR5005643

SOURCE: Ref. zh. Khimiya, Abs. 22S234

AUTHOR: Kotrelev, V.N.; Kostryukova, T.D.; Besfamil'nyy, I.B.; Tarasov, V.V.

TITLE: The properties, processing and use of polycarbonates

CITED SOURCE: Sb. Primeneniye plast. mass v mashinostr. i priborostr. Minsk, 1964, 163-172

TOPIC TAGS: polycarbonate synthesis, polycarbonate mechanical property, polycarbonate working, radio part manufacture, phosgene, transesterification, diphenyl carbonate/ Diflon polycarbonate

TRANSLATION: The "Diflon" brand of polycarbonate can be obtained by the direct reaction of dihydroxy compounds with phosgene or by the transesterification of diphenyl carbonate with diphenylolpropane. Diflon has a molecular weight of up to 200,000, a specific gravity of 1.2, a density in dry granular form of 650 g/liter, and a processing temperature interval of 220-320C. The specific impact toughness of Diflon is 400-500 kg-cm/cm^2; the tensile, compressive and bending strength are 600-700, 800-900 and

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L 41604-65
ACCESSION NR: AR5005643

1000-1100 kg/cm^2, respectively; and the Martens heat resistance is 135-140C. Diflon does not show cold fluidity and can be used in the temperature range from -100 to +130C; it is a self-quenching, chemically stable material. Diflon can be worked on casting machines (casting pressures of 1500-2200 kg/cm^2) or extruders, and can also be subjected to mechanical processing. Diflon is recommended for use in the manufacture of construction parts and the parts of electrical and radio equipment. Z. Ivanova

ENCL: '00   SUB CODE: MT, OC

Card 2/2

L 12889-66   EWP(e)/EWT(m)/EWP(b)   WH

ACC NR: AT6000486   SOURCE CODE: UR/0000/65/000/000/0167/0171

AUTHOR: Tarasov, V. V.; Bartenev, G. M.; Yeremeyeva, A. S.; Ratobyl'skaya, V. A.

ORG: None

TITLE: Polymeric character of vitreous arsenic trisulfide

SOURCE: Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 4th, Leningrad, 1964. Stekloobraznoye sostoyaniye (Vitreous state); trudy soveshchaniya. Leningrad, Izd-vo Nauka, 1965, 167-171

TOPIC TAGS: arsenic compound, sulfide, glass property, thermomechanical property, polymer

ABSTRACT: Specially heat-treated vitreous arsenic trisulfide was studied by the resonance method, in which the value of the resonance frequency characterizes the elastic properties, and the width of the resonance peak shows the magnitude of the dissipative forces. The measurements were taken at 136.6 kc at room temperature. All the samples were characterized by an exceptionally high compressibility (av. 6.2×10^{-12} cm^2/dyne), and the effect of the thermal past on the volume compressibility was insignificant. This high compressibility is attributed to a pronounced heterodynamism, which is apparently due to the fact that the basic structure of vitreous As_2S_3 consists of chain formations bound by relatively weak forces, and the compression takes place primarily at the site of weak bonds.

Card 1/2

L 12889-66

ACC NR: AT6000486

The dependence of the internal friction on the thermal past of the glass was determined, thermomechanical curves for As_2S_3 were plotted, and the temperature dependence of the elongation and coefficient of thermal expansion was studied. The data show vitreous As_2S_3 to be a genuine polymeric material. Orig. art. has: 5 figures.

SUB CODE: 11/ SUBM DATE: 22May65/ ORIG REF: 002

07/

Card 2/2 HW

TARASOV, V.V.

Introducing an automatic program-controlled temperature
regulator. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.
i tekh.inform. 18 no.11:13-14 N '65.

(MIRA 18:12)

TARASOV, V.V.; YUNITSKIY, G.A.

Theory of the heat capacity of chain link and laminated
structures. Zhur. fiz. khim. 39 no.8:2077-2080 Ag '65.
(MIRA 18:9)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni
Mendeleyeva.

L 42881-66   EWP(e)/EWT(m)   WH

ACC NR: AP6022895   SOURCE CODE: UR/0078/66/011/004/0931/0933

AUTHOR: Turdakin, V. A.; Tarasov, V. V.

ORG: none

TITLE: Heat capacity of boric anhydride and sodium borate glasses at low temperatures

SOURCE: Zhurnal neorganicheskoy khimii, v. 11, no. 4, 1966, 931-933

TOPIC TAGS: borate glass, boron compound, heat capacity

ABSTRACT: In order to confirm experimentally the authors' theory on the vulcanizing role of oxygen atoms introduced into the structure of glass along with an oxide modifier, the low-temperature heat capacity of vitreous B_2O_3 and glasses of the $Na_2O-B_2O_3$ system in the range of low Na_2O concentrations was measured. The assumption was that the varying degrees of three-dimensional cross-linking of the glass-forming framework should be reflected in the spectrum of distribution of natural vibration frequencies of the framework and by the heat capacity curve at low temperatures (55–300 °K). The glasses had the following composition:

glass No. 1: 7.87 mole % Na_2O, 92.13 mole % B_2O_3;
glass No. 2: 13.70 mole % Na_2O, 86.30 mole % B_2O_3;
glass No. 3: 21.09 mole % Na_2O, 78.91 mole % B_2O_3.

Card 1/2   UDC: 536.63:546.273-31+536.63:546.33'273-161.6

L 42881-66

ACC NR: AP6022895

The experimental values obtained at 31 temperatures between 59.6 and 295.0°K are tabulated. Analysis of these values, based on the theory of the heat capacity of hetero-dynamic structures, indicates a decrease in the heat capacity of the polymer framework of $Na_2O-B_2O_3$ glasses with increasing Na_2O concentration. This confirms the hypothesis that three-dimensional cross-linking takes place upon introduction of an oxide modifier into the glass. Orig. art. has: 1 table.

SUB CODE: 07,11/SUBM DATE: 26May65/ ORIG REF: 008/ OTH REF: 006

Card   2/2 bdh

L 16131-66 EWT(m)/EWP(e) WH

ACC NR: AP6004183 SOURCE CODE: UR/0076/66/040/001/0148/0152

AUTHOR: Yunitskiy, G. A.; Tarasov, V. V.

ORG: Moscow Chemical Engineering Institute im. D. I. Mendeleyev (Moskovskiy khi-miko-tekhnologicheskiy institut)

TITLE: Changes in the structure and compressibility of alkali borate glasses with changing content of alkali metal oxide

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 1, 1966, 148-152

TOPIC TAGS: potassium compound, glass property, borate glass, ultrasonic velocity, alkali metal oxide, polymer structure, molecular structure

ABSTRACT: Experimental data were obtained for the velocity of ultrasound in potassium borate glasses as a function of the alkali metal oxide content in the range from 0 to 25 mole %. The adiabatic compressibility of this series of glasses was calculated. The course of the compressibility curves provides further support for the polymer theory of glass, which correlates changes in the properties of alkali borate glass during changing concentration of alkali metal oxide with the process of three-dimensional cross-linking of

UDC: 541.20

Card 1/2

L 16131-66
ACC NR: AP6004183

O

the glass skeleton. At a low R_2O content, this cross-linking is due to the formation of oxygen bridges between boron atoms belonging to different boron-oxygen chains. A theoretical interpretation of the dependence of the fraction of boron atoms having fourfold coordination in alkali borate glass on the concentration of the modifying oxide is given. Orig. art. has: 3 figures and 11 formulas.

SUB CODE: 07, 11/ SUBM DATE: 20Oct64/ ORIG REF: 006/OTH REF: 012

Card 2/2

L 04093-67   EWP(k)/EWT(l)/EWT(m)/T/EWP(e)   WH
SOURCE CODE: UR/0058/66/000/003/E009/E010

ACC NR: AR6023280

AUTHOR: Gladkov, A. V.; Tarasov, V. V.; Yunitskiy, G. A.

TITLE: Velocity of ultrasound and compressibility in lead-borosilicate glasses

SOURCE: Ref zh. Fizika, Abs. 3E68

REF SOURCE: Sb. Primeneniye ul'traakust. k issled. veshchestva. Vyp. 20, M., 1964, 181-185

TOPIC TAGS: glass property, ultrasonic velocity, silicate glass, borate glass

ABSTRACT: Measurements were made of the velocity of ultrasonic waves by the resonance method at frequency ~136 kcs. The velocity of sound in lead-borosilicate glasses first decreases with increasing content of B_2O_3, i.e., the structure of the lead-borate component becomes stronger and joining together of the silicon-oxygen frame develops, after which the velocity decreases as a result of the transition of the boron atoms from the triple coordination into the quadrupole coordination. The compressibility of borate glasses as a function of the B_2O_3 concentration passes through a minimum, and that of lead-silicate glass increases smoothly with increasing of lead oxide in it. P. Bokin. [Translation of abstract]

SUB CODE: 11

kh

Card 1/1

L 06510-67   EWT(m)/EWP(j)   RM

ACC NR: AP7000482   SOURCE CODE: UR/0079/66/036/006/1124/1129

NIFANT'YEV, E. Ye., TUSEYEV, A. P., TARASOV, V. V.

"Colamine Glycophosphites and -Phosphonites"

Moscow, Zhurnal Obshchey Khimii, Vol 36, No 6, 1966, pp 1124-1129

Abstract: The phosphorylation of colamine and N-methylcolamine by tetraethyl-
diamides of methyl- and ethylphosphonous acids was studied. The amido-esters
obtained were used to phosphorylate carbohydrates: 1,2-3,4-diisopropylidenegalac-
tose, containing a free primary hydroxyl, and 1,2-5,6-diisopropylideneglucose,
containing a free secondary hydroxyl group, thereby synthesizing the correspond-
ing colamine glycophosphonites. Colamine glycophosphites were synthesized from
diamidoglycophosphites, such as the tetraethyldiamidophosphite of 1,2-5,6-dia-
cetoneglucose, and the colamine derivative, forming cyclic glycoethylenemethyl-
amidophosphites, which reacted with various alcohols to form neutral colamine
glycophosphites. The infrared spectra and other properties of the compounds
obtained, including a promising Arbuzov reaction, were studied. Orig. art. has:
2 figures and 3 tables. [JPRS: 37,023]

TOPIC TAGS: phosphorylation, organic phosphorus compound

SUB CODE: 07 / SUBM DATE: 25Feb65 / ORIG REF: 008 / OTH REF: 001

UDC: 547.26'118

Card 1/1 LS

L 06979-67   EWT(m)   JR (N)   SOURCE CODE: UR/0089/66/020/005/0424/0424
ACC NR: AP6018354

AUTHOR: Kazanskiy, Yu. A.; Kukhtevich, V. I.; Popov, V. I.; Tarasov, V. V.;
Shemetenko, B. P.

ORG: none

TITLE: Dependence of the buildup factor on the location of the detector behind
the shield

SOURCE: Atomnaya energiya, v. 20, no. 5, 1966, 424

TOPIC TAGS: reactor shielding, gamma scattering, gamma detection, scintillation
detector

ABSTRACT: This is an abstract of article No. 76/3559, submitted to the editor and
filed, but not published in full. Inasmuch as earlier investigations of the build-
up factors, with the aid of which account is taken of the scattered gamma radia-
tion, were made for observation points situated either inside or on the surface of
the shield, the authors measured the accumulation factors with a radioactive source
of gamma radiation (Cs^{137}) at different positions of the detector and the source
behind an aluminum barrier of thickness equal to 2.8 mean free paths and of diameter

Card 1/2   UDC: 539.122:539.121.72

L 06979-67

ACC NR: AP6018354

40 cm. The measurements were made with a scintillation detector (stilbene crystal). The distance from the source to the shield surface facing the detector ranged from 18 to 150 cm. For each value of this distance, the distance from the surface of the shield to the detector was varied from 0 to 500 cm. The results show that the decrease of the accumulation factor with increasing distance R has the form $(1/\sin\theta)\exp(-k_T\theta)$ for a point-like isotropic source on the surface of the shield, and the form $\exp(-k_p\theta)$ for a plane parallel beam. The test results were compared with values calculated in accordance with a semiempirical procedure described by the authors earlier (Byulleten' Informatsionnogo tsentra po yadernym dannym [Bull. of Information Center on Nuclear Data] no. 2, Atomizdat, 1965, P. 305. Orig. art. has: 1 figure.

SUB CODE: 18   SUBM DATE: 30Dec65/   ORIG REF: 002   OTH REF: 002

Card 2/2

L 05380-67   ELT(m)   JP/...

ACC NR: AT6027939   SOURCE CODE: UR/0000/66/000/000/0206/0209

29

B+1

AUTHOR: Degtyarev, S. F.; Kukhtevich, V. I.; Tarasov, V. V.

ORG: None

TITLE: Experimental study of the propagation of thermal neutrons close to the source in the unbounded atmosphere

SOURCE: Voprosy fiziki zashchity reaktorov (Problems in physics or reactor shielding); sbornik statey, no. 2. Moscow, Atomizdat, 1966, 206-209

TOPIC TAGS: thermal neutron, neutron distribution, fast neutron, neutron scattering

ABSTRACT: The density of thermal neutrons is experimentally studied to provide data for computing capture γ-radiation in air. A Po-Be fast neutron source was used in a paraffin block having walls 20 cm thick. Thermal neutrons are taken as those with an energy below the cadmium threshold $E_n < 0.4$ Mev and neutrons with greater energies are called fast neutrons. An SNM-0 boron counter was used for measuring the density of thermal neutrons. The source and detector were located at an altitude of 60 m to eliminate the effect of neutrons scattered from the earth. Three quantities were measured directly: 1. the density of neutrons throughout the entire spectrum escaping from the paraffin block; 2. the density of thermal neutrons formed from the fast neutrons; 3. the density of fast neutrons escaping from the source and propagated in the

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ACC NR: AT6027939

atmosphere. The results show that the fraction of thermal neutrons produced by atten-
uation in the atmosphere is small in comparison with the thermal neutrons for the given
spectrum. A comparison of experimental and theoretical data for thermal neutron dis-
tribution shows excellent agreement at a source temperature of 293°K with some discre-
pancy when the source temperature is increased to 440°K. Experimental error is less
than 6-10%. This discrepancy between experimental and theoretical data is not under-
stood and requires further study. Orig. art. has: 2 figures, 1 table, 2 formulas.

SUB CODE: 18/ SUBM DATE: 12Jan66/ ORIG REF: 004/ OTH REF: 001

Card 2/2

TARASOV, V.Ya.

Simple calculation of involutes of bent rectangular parts. Mashino-stroitel' no.8:33 Ag '60. (MIRA 13:9)

(Machinery—Design)

TARASOV, Ya. [Tarasau, IA.]

A woman with a big heart. Rab.i sial.38 no.3:4-5 Mr
'62.
      (Mogilev—Textile,Synthetic)
         (Women—Employment)

               (MIRA 15:2)

TARASOV, Y., polkovnik; IL'IN, S., polkovnik

We must try to improve the work of party committees in military
academies in every possible way. Komm.Vooruzh.Sil 1 no.5:26-32
D '60.
(Russia--Armed forces--Political activity) (Military education)
(MIRA 14:8)

TARASOV, Ye. (Rostov-na-Donu)

Our place is in the field and on the farm. Sov. profsoiuzy 19 no.8:6-7 Ap '63.

(MIRA 16:6)

1. Predsedatel' Rostovskogo sel'skogo oblastnogo soveta professional'nykh soyuzov.
(Rostov Province—Agricultural administration)
(Rostov Province—Trade unions)

TARASO V, Ye.A.

Automatic continuous hoisting in a skip shaft. Ugol' 29 no.12:
39-41 D '54.
(MIRA 8:1)

1. Glavnyy energetik shakhty No. 9 kombinata Intaugol'.
(Mine hoisting)

TARASOV, YE. A.

SOV/5186

PHASE I BOOK EXPLOITATION

Akademiya nauk SSSR. Tsentral'naya nauchno-issledovatel'skaya
laboratoriya elektricheskoy obrabotki materialov

Problemy elektricheskoy obrabotki materialov (Problems of the
Electrical Machining of Materials) Moscow, Izd-vo AN SSSR,
1960, 247 p. Errata slip inserted. 4,200 copies printed.
(Series: Its: Trudy)

Sponsoring Agency: Akademiya nauk SSSR. Resp. Ed.: B. R.
Lazarenko; Ed. of Publishing House: N. L. Podgoretskiy;
Tech. Ed.: S. P. Golub'.

PURPOSE: This collection of articles is intended for scientists
and technicians concerned with the investigation of new ways
of applying electrical energy.

COVERAGE: The book contains articles on studies carried out by
the staff of the Tsentral'naya nauchno-issledovatel'skaya

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Problems of the Electrical (Cont.)

laboratoriya elektricheskoy obrabotki materialov Akademii
nauk SSSR (TsNIL-ELEKTROM AN SSSR) (Central Scientific Re-
search Laboratory for the Electrical Machining of Materials
of the AS USSR) in searching for new applications of elec-
trical energy. The results of these studies include: the
dimensional machining of dielectrics and the utilization of
electric pulsed discharges in carrying out certain chemical
reactions, new information on processes occurring on elec-
trodes and in the interelectrode space during short pulsing,
machining by electric current pulses. Much attention is
paid to the operation of power-supply sources of metals
used in the electrical machining and are welding of metals.
No personalities are mentioned. References accompany most
of the articles.

Lazarenko, B. R., and N. I. Lazarenko. Unused Possibilities   5
for Electrical Energy

Fedorov, N. S., A. N. Merkur'yev, E. Ya. Grodzinskiy, and   14
N. I. Sokolova. Study of Physicochemical Changes Occurring
In Organic Media Under the Effect of Electrical Discharges

Poteyev, M. K. Effect of the Condition of the Interelectrode   25
Space on the Performance of the Spark Process, the Wear of
the Machining Electrode, the Purity of the Surface Obtained,
and the Precision of the Machining

Adoyan, A. G. Electrostatic Method of Purifying Dielectric   36
Liquids from Products of Spark Machining

Lazarenko, B. R., and N. I. Lazarenko. Electric-Spark Method   51
of Perforating Diamonds

Zolotykh, B. N., K. Kh. Oloyev, and Ye. A. Tarasov. Con-   58
cerning the Mechanism of Electrical Erosion of Metal in a
Liquid Dielectric Medium

S/196/61/000/010/029/037
E194/E155

AUTHORS: Zolotykh, B.N., Gioyev, K.Kh., and Tarasov, Ye.A.

TITLE: The mechanism of electrical erosion of metals in a liquid dielectric medium

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.10, 1961, 41, abstract 10K 237. (Symposium "Problems of electrical machining of materials", M., AS USSR, 1960, 58-64)

TEXT: Electrical erosion of metal in a fluid dielectric was investigated by a technique which disclosed the dynamics of formation and collapse of a gas bubble and also the processes occurring within the bubble and on the electrodes. The development of processes in the discharge gap was photographed with a type СФР (SFR) camera, at the rate of 25-500 thousand frames per second. The dielectric fluid was kerosine, and the electrode gap was 10-100 microns. Two arrangements of electrodes were used, to overcome the considerable influence of large electrodes on the shape of the gas bubbles. With the first variant, comprising wire electrodes 0.5-1 mm diameter, records were

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The mechanism of electrical erosion.. S/196/61/000/010/029/037
E194/E155

made of the external appearance of the gas bubble but processes on
the electrode remained invisible. In order to record simultaneous-
ly both the dynamics of development of the gas bubble and the
processes occurring within it, another electrode arrangement was
used consisting of a strip of thin copper foil 0.05-0.1 mm thick
(anode) firmly pressed against a transparent plate and a copper
wire 1 mm diameter (cathode) at an angle of 90° to the plane of the
anode. Pictures were taken from the side of the transparent sheet.
The following conclusions are drawn: a) in the pulse duration
range of 50-100 microseconds, metal removal occurs mainly in the
liquid and only partially in the gas phase. b) In the gas phase
metal is removed during the current impulse. c) In the liquid
phase most of the eroded metal is removed after the end of the
impulse. d) Hydrodynamic and gas dynamic processes play a vital
part in the mechanism of erosion.
Illustrated. 3 literature references.

[Abstractor's note: Complete translation.]

Card 2/2

KUCHEPATOVA, Ye.G.; ROMANOV, I.I.; TARASOV, Ye.F.; SHESTOV, A.I.;
MAKAROV, N.A., otvetstvennyy redaktor; BOYARSKAYA, L., redaktor;
PAVLOVA, M., tekhnicheskiy redaktor

[The "Urals" pavilion (Sverdlovsk and Molotov Provinces, Udmurt
A.S.S.R., Chelyabinsk and Kurgan provinces); a guidebook] Pavil'on
"Ural" (Sverdlovskaia i Molotovskaia oblasti, Udmurtskaia ASSR,
Cheliabinskaia i Kurganskaia oblasti); putevoditel'. Moskva, Gos.
izd-vo selkhoz. lit-ry, 1956. 27 p.   (MIRA 9:8)

1. Moscow. Vsesoyuznaia sel'skokhozyaystvennaya vystavka, 1954-
        (Ural Mountain region--Agriculture)
        (Moscow--Agricultural exhibitions)

TARASOV, Ye. I.

TARASOV, Ye. I., and GLUKHOVSKIY, B. M.

"The Activation Technology of Alloy Emitters with Various Photo-Cathodes,"

Abst: A conference took place in Moscow during February 28 and March 6, 1957 and was attended by scientists and engineers from Moscow, Leningrad, Kiev and other centres of the Soviet Union. Altogether, 28 papers were read and discussed.

RABICHEVA, L.M.; SLONIMSKIY, B.I.; LAZAREV, V.I.; ALYUSHIN, Ye.I.;
POLETAYEV, G.S.; Prinimali uchastiye: TARASOV, Ye.I.;
AFONIN, P.I.; SYROVEGINA, K.V., nauchnyy sotrudnik

Electrothermal method of obtaining zinc dust. Sbor. nauch.
trud. Gintsvetmeta no.18:165-174 '61.   (MIRA 16:7)

1. Nachal'nik elektrotermicheskoy ustanovki Belovskogo tsinkovogo
zavoda (for Tarasov). 2. Starshiy master elektrotermicheskoy
opytnoy ustanovki Belovskogo tsinkovogo zavoda (for Afonin).
3. Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh
metallov (for Syrovegina).
            (Zinc—Electrometallurgy)

RABICHEVA, L.M.; LAZAREV, V.I.; ALYUSHIN, Ye.I.; POLETAYEV, G.S.;
   Prinimali uchastiye: TARASOV Ye.I.; AFONIN, P.I.; SYROVEGINA,
   K.V., nauchnyy sotrudnik; LEVIN, I.Kh., nauchnyy sotrudnik

Obtaining liquid zinc in the electric smelting process. Sbor.
nauch. trud. Gintsvetmeta no.18:175-186 '61.   (MIRA 16:7)

1. Nachal'nik elektrotermicheskoy opytnoy ustanovki Belovskogo
tsinkovogo zavoda (for Tarasov). 2. Starshiy master eloktrotermi-
cheskoy opytnoy ustanovki Belovskogo tsinkovogo zavoda (for Afonin).
3. Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh
metallov (for Syrovegina, Levin).
                     (Zinc—Electrometallurgy)
                     (Liquid metals)

TARASOV, YE. K.

300 pmc

52: 164 61 537 334

ON THE POSSIBILITY OF DISPENSING WITH A
... ACCELERATOR WITH ...

... Tarasov

... acceleratory ...

... that the total energy of a ...
... is found ... infinity so that ...
... magnets whose field is opposite to that of the original
... period of the betatron ...
... values are given and illustrated by a table.

I. N. Sven. H.

pmc

TARASON, YE K.

VLADIMIRSKIY, V.V.; TARASOV, Ye.K.; TREBUKHOVSKIY, Yu.V.

Double-focusing beta-spectrometer with high illuminating power. (MLRA 10:2)
Prib. i tekh. eksp. no.1:13-15 Jl-Ag '56.

(Spectrometer) (Beta rays--Spectra)

Tarasov, Ye. K.

VLADIMIRSKIY, V.V.; KOMAR, Ye.G.; MINTS, A.L.; GOL'DIN, L.L.; KOSHKAREV,
D.G.; MONOSZON, N.A.; NIKITIN, S.Ya.; RUBCHINSKIY, S.M.; SKACH-
KOV, S.V.; STREL'TSOV, N.S.; TARASOV, Ye.K.

Basic characteristics of the projected 50-60 Bev proton accelera-
tor with alternating-gradient focusing. Atom.energ. no.4:31-33
'56.   (MLRA 9:12)
    (Particle accelerators)   (Protons)

SOV/120-58-5-2/32

AUTHORS: Orlov, Yu. F. and Tarasov, Ye. K.

TITLE: Excitation of Oscillations in an Electron Cyclic Accelerator by Quantum Fluctuations of Radiation (Vozbuzhdeniye koleb-aniy v elektronnom tsiklicheskom uskoritele kvantovymi fluktuatsiyami izlucheniya)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 5, pp 17-20 (USSR)

ABSTRACT: The effect of considerable growth of oscillations in an electron accelerator was discovered and studied by the authors of Ref.1, and was further investigated in Refs.2 and 3. In Ref.2 this effect was discussed, taking into account the damping of phase and radial oscillations. It was estab-lished in Ref.2 that in a usual accelerator with strong focussing, radial oscillations are governed by the formula:

$$r \sim \exp\left(1/2 \int_0^t P_\gamma/E.dt'\right)$$

, where P_γ is the intensity

averaged over the frequencies of the quanta, and E is the energy of the particle. Phase oscillations are damped with a decrement equal to $2P_\gamma/E$. In the present paper the

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SOV/120-53-5-2/32

Excitation of Oscillations in an Electron Cyclic Accelerator by
Quantum Fluctuations of Radiation

growth of phase and radial oscillations is expressed as a
function of a certain general parameter which depends upon
the coupling between radial and phase oscillations. The
dependence of this parameter on the structure of the magnetic
system was discussed in some detail in a previous paper by
the present authors (Soviet Physics, 1958, Vol 34 (7), Nr 3,
p 449(651) (in English)). General formulae are now obtained
for rms amplitudes of phase and radial oscillations which
take into account the variation of the magnetic field along
the orbit, which is possible in an accelerator with strong
focussing. The coupling between the damping factors for
phase and radial oscillations is taken into account. The

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